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November 15, 2002

CERTIFICATE OF MAILING
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November 15, 2002

Date

Michael C. Barrett

Michael C. Barrett

BOX DD

Commissioner for Patents
 Washington, DC 20231

RE: *U.S. Patent Application No. 09/882,805 entitled "METHOD AND APPARATUS FOR COMBINED MAGNETOPHORETIC AND DIELECTROPHORETIC MANIPULATION OF ANALYTE MIXTURES" – Peter R. C. Gascoyne et al.*
Our reference: UTXC:625US
Client reference: MDA99-044

Sir:

Enclosed for filing in the above-referenced patent application is an Information Disclosure Statement, Form PTO-1449, and references (A1-A27, B1-B21, C1-C73).

No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to the enclosed materials, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski Deposit Account No.: 50-1212/UTXC:625US.

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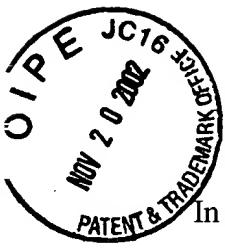
Respectfully submitted,

Michael C. Barrett

Michael C. Barrett
 Reg. No. 44,523

MCB/cmb
 Encl.: as noted

25231318.1



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Peter R.C. Gascogne *et al.*

Serial No.: 09/882,805

Filed: June 14, 2001

For: METHOD AND APPARATUS FOR
COMBINED MAGNETOPHORETIC AND
DIELECTROPHORETIC
MANIPULATION OF ANALYTE
MIXTURES

Group Art Unit: 1743

Examiner: Unknown

Atty. Dkt. No.: UTXC:625US

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Michael C. Barrett

INFORMATION DISCLOSURE STATEMENT

BOX DD

Commissioner for Patents
Washington, D.C. 20231

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be

an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski Deposit Account No.: 50-1212/UTXC:625US.

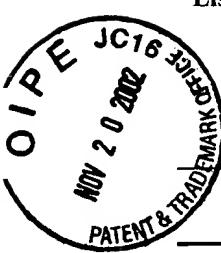
Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,

Michael C. Barrett
Michael C. Barrett
Reg. No. 44,523
Attorney for Applicants

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Date: November 15, 2002



Form PTO-1449 (modified)		Atty. Docket No. UTXC:625US	Serial No. 09/882,805
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant Peter R.C. Gascoyne <i>et al.</i>	
		Filing Date: June 14, 2001	Group: 1743
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 2</i>	Other Art <i>See Page 3</i>	

U.S. Patent Documents

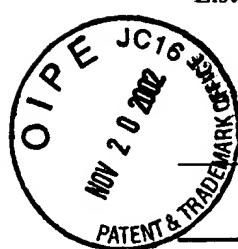
Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	4,001,102	1/4/97	Batha <i>et al.</i>	204	186	6/23/75
	A2	4,326,934	4/27/82	Pohl	204	180	12/31/79
	A3	4,440,638	4/3/84	Judy <i>et al.</i>	210	198.2	2/16/82
	A4	5,344,535	9/6/94	Betts <i>et al.</i>	204	183.1	4/27/93
	A5	5,454,472	10/3/95	Benecke <i>et al.</i>	209	127.1	8/19/92
	A6	5,489,506	2/6/96	Crane	435	2	2/16/95
	A7	5,569,367	10/29/96	Betts <i>et al.</i>	204	547	1/27/95
	A8	5,571,401	11/5/96	Lewis <i>et al.</i>	205	787	3/27/95
	A9	5,653,859	8/5/97	Parton <i>et al.</i>	204	450	1/21/94
	A10	5,683,569	11/4/97	Chung <i>et al.</i>	205	775	2/28/96
	A11	5,814,200	9/29/98	Pethig <i>et al.</i>	204	547	3/31/94
	A12	5,858,192	1/12/99	Becker <i>et al.</i>	204	547	10/18/96
	A13	5,888,370	3/30/99	Becker <i>et al.</i>	204	643	2/23/96
	A14	5,965,452	10/12/99	Kovacs	436	149	7/9/96
	A15	5,993,630	11/30/99	Becker <i>et al.</i>	204	547	1/31/96
	A16	5,993,631	11/30/99	Parton <i>et al.</i>	204	547	7/8/97
	A17	5,993,632	11/30/99	Becker <i>et al.</i>	204	547	2/1/99
	A18	6,010,616	1/4/00	Lewis <i>et al.</i>	205	787	12/8/97
	A19	6,017,696	1/25/00	Heller	435	6	7/7/94
	A20	6,093,308	7/25/00	Lewis <i>et al.</i>	205	787	2/26/99
	A21	6,099,803	8/8/00	Ackley <i>et al.</i>	422	68.1	2/20/98
	A22	6,113,768	9/5/00	Fuhr <i>et al.</i>	204	643	12/23/94
	A23	6,129,828	10/10/00	Sheldon, III <i>et al.</i>	204	518	9/6/96

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U.S. Patent Documents

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	A24	6,224,745 B1	5/1/01	Baltruschat	205	775	3/5/98
	A25	6,225,059 B1	5/1/01	Ackley <i>et al.</i>	435	6	1/29/99
	A26	6,287,832 B1	9/11/01	Becker <i>et al.</i>	435	173.9	9/14/99
	A27	6,294,063 B1	9/25/01	Becker <i>et al.</i>	204	450	2/12/99

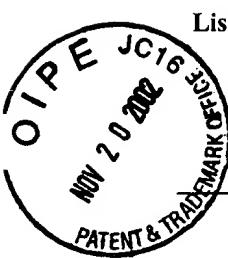
Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B1	474723	6/25/75	USSR	204	643	
	B2	EP 0513064	11/19/92	Europe			
	B3	EP 0625267	11/23/94	Europe			
	B4	EP 0680380	11/8/95	Europe			
	B5	EP 0691891	1/17/96	Europe			
	B6	EP 0898493	3/3/99	Europe			
	B7	GB 2266153	10/20/93	UK			
	B8	JP 1-196566	8/8/89	Japan			Abstract only
	B9	JP 5-126796	5/21/93	Japan			Abstract only
	B10	JP 6018523	1/25/94	Japan			Abstract only
	B11	WO 00/69565	11/23/00	PCT			
	B12	WO 90/08759	8/9/90	PCT			
	B13	WO 91/11262	8/8/91	PCT			
	B14	WO 93/16383	8/19/93	PCT			
	B15	WO 93/20927	10/28/93	PCT			
	B16	WO 94/16821	8/4/94	PCT			

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Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B17	WO 94/22583	10/13/94	PCT			
	B18	WO 95/13813	5/26/95	PCT			
	B19	WO 96/31282	10/10/96	PCT			
	B20	WO 97/34689	9/25/97	PCT			
	B21	WO 99/62622	12/9/99	PCT			

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	"Bangor biochip heads for California," EPSRC Home Page: http://www.epsrc.ac.uk/documents/about_epsr/corporate_publi.../bangor.ht , article printed on December 26, 2000.
	C2	"Diagnostic dielectrophoresis-on-a-chip," <i>Science/Technology</i> , 77(8):32, 1999. Article printed from http://pubs.acs.org/hotartcl/cenear/99022/7708scitobox2.html on December 26, 2000.
	C3	Allsopp <i>et al.</i> , "Impedance technique for measuring dielectrophoretic collection of microbiological particles," <i>J. Phys. D: Appl. Phys.</i> , 32:1066-1074, 1999.
	C4	Arnold and Zimmermann, "Rotation of an isolated cell in a rotating electric field," <i>Naturwissenschaften</i> 69 297-300, 1982.
	C5	Balachandran <i>et al.</i> , "Electrostatic atomization of conducting liquids using AC superimposed on DC fields," <i>IEEE Transactions on Industry Applications</i> , 30(4):850-854, 1994.
	C6	Becker <i>et al.</i> , "Separation of human breast cancer cells from blood by differential dielectric affinity," <i>Proc. Natl. Acad. Sci. USA</i> , 92(3):860-864, 1995.
	C7	Becker <i>et al.</i> , "The removal of human leukaemia cells from blood using interdigitated microelectrodes," <i>J. Phys. D. Appl. Phys.</i> , 27:2659-2662, 1994.
	C8	Cheng <i>et al.</i> , "Preparation and hybridization analysis of DNA/RNA form E. coli on microfabricated bioelectronic chips," <i>Nature Biotechnology</i> , 16:541-546, 1998.
	C9	Davis and Giddings, "Feasibility study of dielectrical field-flow fractionation," <i>Separation Science and Technology</i> , 21(9):969-989, 1986.

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	C10	De Gasperis <i>et al.</i> , "Microfluidic cell separation by 2-D dielectrophoresis," <i>Biomedical Microdevices</i> , 2:11, 41-49, 1999.
	C11	El-Kishky and Gorur, "Electric field and energy computation on wet insulating surfaces," <i>IEEE Transaction on Dielectrics and Electrical Insulation</i> , 3(4):587-593, 1996.
	C12	El-Kishky and Gorur, "Electric field computation on an insulating surface with discrete water droplets," <i>IEEE Transactions on Dielectrics and Electrical Insulation</i> , 3(3):450-456, 1996.
	C13	Fuller <i>et al.</i> , "Microfabricated multi-frequency particle impedance characterization system," <i>Micro Total Analysis System</i> , 265-268, May 2000.
	C14	Galicki <i>et al.</i> , "Electrohydrodynamic atomization of dielectric fluids," <i>Conference on Electrical Insulation and Dielectric Phenomena</i> , IEEE Annual Report, 365-368, 1996.
	C15	Gascoyne <i>et al.</i> , "A microfluidic device combining dielectrophoresis and field flow fractionation for particle and cell discrimination," <i>Proceedings of Solid State Sensor and Actuator Workshop, Hilton Head Supplement</i> , 37-38, 1998.
	C16	Gascoyne <i>et al.</i> , "Cell separation by conventional dielectrophoresis combined with field-flow-fractionation," <i>Abstract, 40th Annual Meeting of the Biophysical Society</i> , Baltimore, Maryland, P. A333, Tu-Pos412, February 17-21, 1996.
	C17	Gascoyne <i>et al.</i> , "Dielectrophoretic separation of cancer cells from blood," Presented at the Institute for Electrical Engineers Industrial Application Society meeting, Orlando, FL, October 1995, <i>IEEE</i> , 1366-1373, 1995.
	C18	Gascoyne <i>et al.</i> , "Dielectrophoretic separation of cancer cells from blood," <i>IEEE Transactions on Industry Applications</i> , 33(3):670-678, 1997.
	C19	Gascoyne <i>et al.</i> , "Dielectrophoretic separation of mammalian cells studied by computerized image analysis," <i>Meas. Sci. Technol.</i> , 3:439-445, 1992.
	C20	Gascoyne <i>et al.</i> , "Manipulations of erythroleukemia cells using travelling electric fields," <i>Proc. 16th IEEE:Eng. Med. Biol. Soc.</i> , 772-773, 1994.
	C21	Gascoyne <i>et al.</i> , "Membrane changes accompanying the induced differentiation of friend murine erythroleukemia cells studied by dielectrophoresis," <i>Biochim. Biophys. Acta</i> , 1149:119-126, 1993.

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Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C22	Gascoyne <i>et al.</i> , "Numerical analysis of the influence of experimental conditions on the accuracy of dielectric parameters derived from electrorotation measurements," <i>Bioelectrochem. Bioenerg.</i> , 36:115-125, 1994.
	C23	Gascoyne <i>et al.</i> , "Use of dielectrophoretic collection spectra for characterization differences between normal and cancerous cells," <i>IEEE Trans. Ind. Appl.</i> , 30:829-834, 1994.
	C24	Gawad <i>et al.</i> , "Impedance spectroscopy cell analysis in microchannels," <i>Micro Total Analysis Systems</i> , 253-255, 2001.
	C25	Gawad <i>et al.</i> , "Micronarcined impedance spectroscopy flow cytometer for cell analysis and particle sizing," <i>Lab on a Chip</i> , 1:76-82, 2001.
	C26	Giddings, "Field-flow fractionation: analysis of macromolecular, colloidal, and particulate materials," <i>Science</i> , 260:1456-1465, 1993.
	C27	Hagendorn <i>et al.</i> , "Travelling-wave dielectrophoresis of microparticles," <i>Electrophoresis</i> , 13:49-54, 1992.
	C28	He <i>et al.</i> , "Droplet charge-to-mass ratio measurement in an EHD liquid-liquid extraction system," <i>IEEE Transactions on Industry Applications</i> , 32(1):146-154, 1996.
	C29	Higashiyama <i>et al.</i> , "Behavior of water droplets located on a hydrophobic insulating plate under DC field," <i>IEEE</i> , 1808-1813, 1998.
	C30	Hoffman and Britt, "Flow-system measurement of a cell impedance properties," <i>J. Histochemistry and Cytochemistry</i> , 27:234-240, 1979.
	C31	Hoffman <i>et al.</i> , "Flow cytometric electronic direct current volume and radiofrequency impedance measurements of single cells and particles," <i>Cytometry</i> , 1:377-384, 1981.
	C32	Hölzel and Lamprecht, "Dielectric properties of yeast cells as determined by electrorotation," <i>Biochim. Biophys. Acta</i> 1104:195-200, 1992.
	C33	Hosokawa <i>et al.</i> , "Handling of picoliter liquid samples in a Poly(dimethylsiloxane)-based microfluidic device," <i>Anal. Chem.</i> , 71:4781-4785, 1999.
	C34	Huang <i>et al.</i> , "Application of AC electrokinetics for cell characterization and manipulation," <i>Abstract</i> , 40 th Annual Meeting of the Biophysical Society, Baltimore, Maryland, P. A334, Tu-Pos413, February 17-21, 1996.

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Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C35	Huang <i>et al.</i> , "Differences in the AC electrodynamics of viable and non-viable yeast cells determined through combined dielectrophoresis and elctrorotation studies," <i>Phys. Med. Biol.</i> , 37(7):1499-1517, 1992.
	C36	Huang <i>et al.</i> , "Electrokinetic behaviour of colloidal particles in travelling electric fields: studies using yeast cells," <i>J. Phys. D: Appl. Phys.</i> 26:1528-1535, 1993
	C37	Huang <i>et al.</i> , "Electrorotational studies of the cytoplasmic dielectric properites of Friend murine erythroleukaemia cells," <i>Phys. Med. Biol.</i> , 40:1789-1806, 1995.
	C38	Huang <i>et al.</i> , "Introducing dielectrophoresis as a new force field for field-flow fractionation," <i>Biophys. J.</i> , 73:1118-1129, 1997.
	C39	Huang <i>et al.</i> , "The removal of human breast cancer cells from hematopoietic CD34+ stem cells by dielectrophoretic field-flow-fractionation," <i>J. of Hematothrapy & Stem Cell Research</i> , 8(5): 481-490, 1999.
	C40	Huneiti <i>et al.</i> , "Harmonic spraying of conducting liquids employing AC-DC electric fields," <i>IEEE Transactions on Industry Applications</i> , 34(2):279-285, 1998.
	C41	Jinsart <i>et al.</i> , "Inhibition of myosin light chain kinase, cAMP-dependent protein kinase, protein kinase C and of plant CA-dependent protein kinase by antraquinones," <i>Biological Chemistry</i> , 373:903-910, 1992.
	C42	Jones and Kallio, 'Dielectrophoretic levitation of spheres and shells,' <i>J. Electrostat.</i> , 6:207-224, 1979.
	C43	Jones, <i>Electromechanics of Particles</i> , Cambridge University Press, Cambridge, Chapter 3:34-82, 1995.
	C44	Kashyap and Gratzl, "Electrochemistry in microscopic domains. 1. The electrochemical cell and its voltammetric and amperometric response," <i>Anal Chem.</i> , 70:1468-1476, 1998.
	C45	Kloes and Koenig, "Basic investigation of the performance of droplets on electrically stressed polymer surfaces," <i>Conference on Electrical Insulation and Dielectric Phenomena</i> , IEEE Annual Report, 374-377, 1997.
	C46	Lee and Kim, "Liquid micromotor driven by continuous electrowetting," <i>IEEE</i> , 538-543, 1998.
	C47	Markx and Pethig, "Dielectrophoretic separation of cells: continuous separation," <i>Biotechnology and Bioengineering</i> , 45:337-343, 1995.

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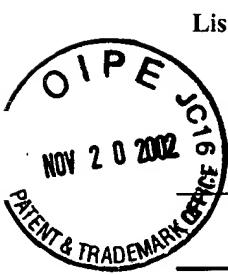
Exam. Init.	Ref. Des.	Citation
	C48	Markx <i>et al.</i> , "Dielectrophoretic characterization and separation of micro-organisms," <i>Microbiol.</i> , 140:585-591, 1994.
	C49	Massey, "Mechanics of Fluids," 2 nd Edition, 136-139, 1975.
	C50	Metwally, "Electrostatic charging and modeling of aqueous sprays and fission of droplets," <i>Conference on Electrical Insulation and Dielectric Phenomena</i> , IEEE Annual Report, 117-120, 1996.
	C51	Mizuno <i>et al.</i> , "Behavior of water droplets on silicone rubber sheet under AC voltage application," <i>IEEE</i> , 96-99, 1998.
	C52	Moesner <i>et al.</i> , "Electrostatic devices for particle microhandling," <i>IEEE Transactions on Industry Applications</i> , 35(3):530-536, 1999.
	C53	Sathuvalli and Bayazitoglu, "The lorentz forces on an electrically conducting sphere in an alternating magnetic field," <i>IEEE Transactions on Magnetics</i> , 32(2):386-399, 1996.
	C54	Sato <i>et al.</i> , "Experimental investigation of droplet formation mechanisms by electrostatic dispersion in a liquid-liquid system," <i>IEEE Transactions on Industry Applications</i> , 33(6):1527-1534, 1997.
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Form PTO-1449 (modified)		Atty. Docket N . UTXC:625US	Serial No. 09/882,805
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant Peter R.C. Gascoyne <i>et al.</i>	
		Filing Date: June 14, 2001	Group: 1743
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 2</i>	Other Art <i>See Page 3</i>	

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C61	Wang <i>et al.</i> , "Dielectrophoretic manipulation of cells with spiral electrodes," <i>Biophys. J.</i> , 72:1887-1899, 1997.
	C62	Wang <i>et al.</i> , "Dielectrophoretic manipulation of particles," presented at the instituted for electrical engineers industrial application society meeting, Orlando, FL, October 1995.
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